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ABSTRACT

General Systems Theoy is a contemporary discipline that profitably lends itself as a new approach to literature. Pioneered by Ludwig von Bertalanffy in Germany in the 1930s, the theory has had successful applications in the United States in philosophy, business, and urban planning. Applicatcns of certain principles of systems theory to A. Solzhenitsyn's "One Day in the Life of Ivan Denisovich" reveals a plot that is not merely chronological but decisional and psychological in structure. A number of significant subplots equidistant from the novel's climactic center reinforce the novel's decisional structure, as do three main characters who contrast with Ivan's ability to make decisions that meet his security, identity, and stimulation needs while he lives within an oppressive system. Since General Systems Theory offers new insights into Solzhenitsyn's novel, the approach may be fruitful for literary critics to apply to other works as well. (Author)

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A Systems Approach to Solzhenitsyn's *One Day in the Life of Ivan Denisovich*

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In 1975 at an MLA seminar on "New Directions in *Beowulf* Scholarship," Douglas Butturff developed the point that other disciplines such as psychology, sociology, and even archaeology had and probably would continue to shed new light on *Beowulf* in coming years. Thomas Cable's application of principles of Gregorian chant to *Beowulf*'s prosody has continued to enlighten us a good deal since 1975, as have the efforts of other scholars to bring broader approaches not only to *Beowulf*, but to many other works, as well.

A contemporary discipline that profitably lends itself as a new approach to literature is General Systems Theory, an integrative body of concepts presently employed in such diverse fields as philosophy, business management, and urban planning, General Systems Theory (GST), a phenomenon of the last fifty years or so, provides many ways of exploring a work of art that most literary scholars are unfamiliar with. When GST is used to study a short novel like Alexander Solzhenitsyn's *One Day in the Life of Ivan Denisovich*, we are enabled to view the artifact more holistically and in some interesting new dimensions.

I

Although GST came of age in 1954 when the Society for the Advancement of General Systems Theory was founded, it took root much earlier. According to Ludwig von Bertanlanffy, often called "the father of General Systems Theory,"

CS205381

the notion of system, as old as European philosophy itself, can be traced back to Aristotelian thought.[1] Further, a number of ideas proffered by GST derive more recently from Hegel (1770-1831), who stated that; 1) the whole is more than the mere sum of its parts; 2) the whole determines the nature of its parts; 3) the parts cannot be understood if considered separately from the whole; and 4) the parts are dynamically interrelated and interdependent.[2]

In the late 1800s a group of biologists called Vitalists denied the possibility of studying living processes with analytic-mechanistic approaches alone, and tried to explain the characteristics of living processes in different ways than did their colleagues in the physical sciences. Although Vitalism declined because more and more vital phenomena began to be understood in chemical and physical terms, the movement did give impetus to General Systems Theory by insisting on the use of a variety of approaches toward the material and living elements of the universe.

When after the turn of the century rapid advances in science drove a further wedge between the physical sciences and abstract thought, a number of scientists and philosophers in the 1930s called for a new kind of logic that would include both living and nonliving systems. Von Bertalanffy's work which offered such a logic, began at that time through lectures which were published in German in the 1940s and later translated into English.[3] Von Bertalanffy's ideas came on the scene at just the right time, for many thinkers were hungry for just such an approach.

According to John P. van Gigch, there were five reasons why von Bertalanffy and so many others sought an integrated theory that would prove valid for systems in general:[4]

1. There are similar principles, or isomorphies, that "govern the behavior of entities across many fields. Because these principles are common" to systems at "several levels of organization and can legitimately be transferred from one level to another," a theory was needed to explain these correspondences and state them in special laws.

2. A new science was needed to develop successfully the theory of organized complexity, since classical science was limited to the theory of unorganized or disorganized complexity. In other words, the classical physical sciences could reduce and analyze the parts in Newtonian fashion, but could not cope with the whole. GST, on the other hand, sought to find new scientific strategies whereby "internal interactions are left intact, and the system is studied as a whole."[5] While Newtonian science tried to explain "the commonality underlying diversity" in terms of shared substances such as material atoms, contemporary GST tries to identify "common features in terms of shared aspects of organization," or complexity, which apply validly across a broad group of systems at various levels.[6]

3. Conventional theories of physics were inadequate for dealing with living systems as open, or capable of data processing, and could therefore not consider the entropic laws explaining the dissipation, degradation, or evolution of living organisms.

4. Systems theorists hoped to find "a unitary concept of the world" which would include even the physical sciences because it would be based "on the isomorphy of laws in different fields."[7] According to Kenneth Boulding, what was needed was a body of concepts that would apply to the general relationships of the empirical world, "a level of theoretical model building which lies between the highly

generalized constructions of pure mathematics and the specific theories of the specialized disciplines."[8] For Anatol Rapoport, the power and value of GST would depend on whether properties common to all systems really exist, and if they do, whether important results can come from identifying and understanding these properties, rather than from merely identifying and analyzing the specific content, or parts.[9] For example, the sonnet is a poetic system with a certain formal level of organization (complexity) which contains more esthetic capability for reader enjoyment than the mere sum of its component lines, a feature of a system called synergism. For Rapoport, the isomorphies or organizational similarities between sonnets must be considered if we are to understand what a sonnet is and how it works--Newtonian linear analysis in this case could not cope with the sonnet as a system.

5. Since the seventeenth century, science's successful explanations of nature have outstripped philosophy's; as a result, the two disciplines have become divided and uncooperative in a manner characterizing a similar split between most quantitative and qualitative disciplines in general. GST strives to combine science and philosophy once again by providing a philosophical foundation for the concepts with which scientists work.

General Systems Theory is today a fully developed discipline with principles too numerous and too complex to include here. Along with mathematics and philosophy, GST considers itself a general science working hand in hand with the other two, with all three having as their domain the physical sciences such as chemistry, physics, and earth sciences; the life sciences such as biology, botany, and zoology; the behavioral sciences such as anthropology, political

science, psychology, and sociology; and the social sciences and humanities such as economics, education, management, and the arts.

GST classifies the physical sciences under "hard" systems theory, dealing as they do with nonliving systems such as frameworks, clockworks, or thermostats--concrete systems of organized simplicity. The humanities, and life, behavioral, and social sciences, fall under "soft" systems theory since they deal with living systems--cells, plants, animals, human beings, and social systems and organizations. As we move from the humanities through the life, behavioral, and social sciences, we deal with increasingly more abstract, more open systems of increased organizational complexity. While "hard" systems theory is primarily interested in the antecedents of its subject systems, "soft" systems theory is more concerned with the consequences of its subject systems.

Although little known among humanists, General Systems Theory and its various applications, especially in communications theory and in business management, has become very influential in our modern world, both because of the insights and energies of systems theorists like von Bertalanffy, Rapoport, J. G. Miller, and Ross B. Ashby, and because of its intellectual appeal, conciliatory intent, and successful practicality in application.

Since literature is a system designed by man--himself a living, open, and complex system--a number of the principles of GST apply to man's artifacts, as well. A few of these must be understood before they can be applied to Solzhenitsyn's <u>One Day</u>.

II

According to General Systems Theory, life in society is organized around complex systems in which and by which man tries to order his universe.[10] A system can be defined simply as an aggregate or set of related elements; thus a natural collection of component parts like such as a rockpile or tree is a system just as a man-made aggregate like a fully automated hydroelectric dam is a system. The English language is a conceptual system because its elements are concepts. An automobile is composed of objects, a language department of subjects. A system can also be made up of concepts, objects, and subjects, such as Skylab while it was manned and operational--a man-machine system. Systems themselves are often composed of other systems, or subsystems, and they often also comprise larger systems called total systems or whole systems; for example, the octave of a Petrarchan sonnet is a subsystem of the total sonnet as system, just as a chapter of Les Misérables is a subsystem of the entire novel as conceptual system.

Systems can first be characterized as having organization--the elements are connected in a meaningful way, are affected by being part of the system, and are changed if they leave it.[11] These principles apply to hydrogen removed from water as well as to a limb severed from a body. For example, the octave of our sonnet, if it is Petrarchan, or a quatrain, if Elizabethan, is related meaningfully to its sestet or other quatrains and couplet, and changes its nature if separated. Chapter 3 of Les Misérables is affected not only by Chapters 2 and 4 which precede and follow it, but by Chapters 1 and 2 in their mutually systemic relationship, as well as by the nature of the total novel as system. From the preceding examples it follows that some systems, such as novels, are

relatively complex, while others in comparison, for example, sonnets, are relatively simple. In either instance, however, the system, because of its dynamic relationships, is in itself of interest to some other system, in this case, the reader.

All living systems are purposeful, or have a function, while nonliving systems--frameworks, clockworks, thermostats--become purposive only insofar as they are acted upon by a living system. A group of masons, for example, may take our pile of rocks and build a wall, a territorial control system or simple framework. Systems, subjects, and even elements also have attributes which are either quantitylike or qualitylike. The former, of course, are easily measured and are under the domain of the "hard" sciences. Qualitylike attributes such as the quality of life in the United States--much harder to measure because more abstract and complex--form the domain of the "soft" sciences like sociology, esthetics, or even literary criticism. Living systems also have goals and objectives, and when man designs his systems, the less abstract the elements involved, the more easily the goals can be defined. For example, it is easier to design our stone wall to keep cattle in a pasture than it is to design goals for a successful philosophy of life.

Despite its goals, a system's attributes have value only if they are desirable to another system. Billy Budd, for example, an excellent foretopman, is of value to Captain Graveling and his man-machine system Rights of Man, but this same attribute of excellence in foretopmanship would be useless on a modern nuclear submarine. However, if a system is sufficiently adaptive because it is not too specialized, it can survive. For example, Billy Budd's other attributes of obedience and willingness to work and learn would probably enable him, unlike Dansker, to adapt to the needs of a new system. This concept of GST, of course,

is similar to Darwinism, which it includes, but the accent is on survival through adaptability of all kinds in GST, rather than on biological adaptability alone.

A useful distinction is that between state and flow. A system's state is defined by the attributes it displays at a specific point in time; flow, however, is defined in terms of the rate of change in the value of the system's attributes to other systems. A related term, behavior, denotes a change in a system's state over time. Systems exhibit state, flow, and behavior in terms of the important concepts of environment, boundaries, and interfaces. The environment is simply all other systems over which a particular system decision maker has no control. This lack of control, however, does not mean that the decision maker can disregard the environment. On the contrary, certain attributes of an adjacent system may limit his own and must be taken into account--if not controlled--in the decision making process if his system is to maintain stability. Boundaries are the limits between one's own system and an adjacent, uncontrollable system. Interfaces are those points at which two open systems meet and through which they can communicate.

One major error that decision makers often make is to draw false boundaries, thus limiting the potential spheres of influence of their own systems. For example, if one nation assumes another nation to be uncooperative--and cooperation is a form of mutual systemic control--then it will avoid interface and limit its own systemic options. Again, a doctor's faulty diagnosis sets a false environmental boundary and limits the doctor's control over the patient's disease. The well-known prayer asks for the ability to change what can be changed, to accept what cannot be changed, and the wisdom to know the difference.

GST places high value on the third capability. Moreover, GST even allows for prayer, or communication between lower and superior systems, and would even allow for spiritualism. The application of GST might be that the system agent/medium has widened the usual boundaries to the point where he or she can interface with completely spiritual systems.

An open system, then, is one that can receive and transmit information through an interface to another system in order to reduce its own or another system's entropy, or disorganization resulting from a lack of information. A closed system cannot transfer information and then use feedback to adjust its behavior except through analogy, as in the case of a thermostat. Living systems are relatively open--though one nation may be relatively closed compared to another--while nonliving systems are closed.

Systems agents or decision makers use the concepts we have discussed to perform two major activities--Systems Improvement and Systems Design.

Systems Improvement attempts to make changes that bring an existing system closer to predicted standards or desired operating conditions. For example, American voters go to the polls each November to elect new representatives who they hope will improve the existing system. Implicit in Systems Improvement is the self-imposed constraint that the particular system cannot or should not be changed. Some would take this to be the case with the narrator's attitude toward the workplace in "Bartleby the Scrivener." Once a system is in being it tends to remain in being as long as it performs roughly according to expectations. If a system does not meet its intended goals, does not give expected results, or does not operate as originally intended, then Systems Improvement seeks introspectively to identify the problem within the system's various elements

and correct it. As a means of change, Systems Improvement offers very limited choices, for it rarely questions the function, purpose, structure, or processes of the system itself, but merely tinkers with its parts. If Systems Improvement were an effective change agent, few American firms would go bankrupt, for the approach is very widely practiced. For an example closer to home, we rarely design a new English or Spanish major. This is either because the current system is effective, or because for reasons apart from system purpose, we prefer to add a course here, subtract a course there.

Rhetorical theory and the teaching of composition, however, are currently and actively engaged in Systems Design. GST would encourage us to widen our boundaries and increase our options by considering new system designs whenever anything in our particular curriculum is not working in a productive, educational, or esthetic way. Systems Design involves starting with the functions and goals of the system and organizing and defining parts that will support the whole. Such a procedure has been followed in recent years at a number of emerging state universities in Texas which started with graduate programs and courses designed to meet certain objectives, and then gradually added senior, junior, sophomore, and freshman subsystems that supported the whole. Beowulf's approach in defeating Grendel is not Systems Improvement--he neither teaches the Danes new tactics nor gets a longer, sharper sword. He uses a new system, himself, to defeat Grendel, and he is successful, according to R. E. Kaske, because Beowulf as decision maker has the required attributes, both courage and wisdom, to perform the desired task.[12]

Systems Improvement is characteristic of the Planner Follower, Systems Design of the Planner Leader. The former is content to satisfy trends, the

latter to set them. In a sense Andrew Marvell was a Planner Follower with his poetic systems, Walt Whitman a Planner Leader. In literature as in life, there is need for both types of planners, as long as the system does not deteriorate. A danger of Systems Improvement is sub-optimization, or settling for less "because that's the way things are." Many systems have suboptimized themselves into oblivion, as George does regarding Emma in Flaubert. On the other hand, Systems Design requires careful extrospection, the ability to plan the design in light of relationships with all other affected systems, both controllable and uncontrollable, but, failing this, it can result in change merely for the sake of change.

Characteristic of both types of change are spillover effects and tradeoffs. Spillover effects are sometimes unpredictable results of change which affect other systems, either positively or negatively. For example, General Motors might design a lighter, more streamlined auto strictly for appearance, with the spillover effect of improved gas mileage because of minimal wind resistance. This spillover would be positive for the car's purchaser because of decreased operating costs, but negative for another automaker with a less efficient design, in terms of sales. Both Planner Leaders and Planner Followers should be aware of as many spillover effects as they can identify before making changes or designing systems, and take these effects on other systems into account. To do this, system planners must, of course, be able to deal with complexity.

If a system cannot deal with greater levels of complexity, then it must either adapt and change its function or ally itself with other systems to increase its capability, as did the Western Allies in World War II. Henry Ford's Model T could take us to the corner grocery, but it took the

alliance of many technologies plus more complex systems designs to get us to the moon and beyond. And as a system becomes more complex to deal with more complexity, more spillover effects are produced, which should also be predicted.

In affecting change, system planners must always compare ends and means to determine their relative merit and thus consciously accept desirable trade-offs as a result of priorities, compromises and substitutions when objectives conflict. For example, is it better to provide federal housing money for 25 low-income families, or for 50 middle-income families? The decision is more complex than it at first appears, and the final choice will result in some tradeoffs of objectives.

As has already been seen to some extent, General Systems Theory freely adopts concepts from many other disciplines, and this free adoption is one of its primary integrative strengths, for like a first encounter with Esperanto, practitioners of many disciplines feel surprisingly at home when first working with GST. From psychology, for example, GST uses Maslow's hierarchy of values to explain living systems motivation. From communications theory and cybernetics, the science of control in man-machine systems, GST adopts concepts which explain how living systems perceive and communicate reality and how they can adapt to environmental change.

A living system must rely on its detector-selector-effector (DSE) functions to perceive reality, for only then can it adapt to change by minimizing entropy, a system perturbation resulting from a lack of information needed to satisfy the system's security, identity, and stimulation needs. Information enters the system as input via the detector, is processed via the selector, and becomes output via the effector. Part of the output also bounces back to the detector

as feedback for further correction as needed in a repeat of the DSE process. If detection is faulty, or absent as with a closed system, if the detector processing is inappropriate, the output misdirected, or feedback ignored, entropy can increase to the point where the system eventually breaks down. A systems view of Watergate in terms of DSE would be that the decision maker himself was relatively closed and perceived reality only through limited filters, his immediate staff, who also gave him improper feedback. The lack of valid information caused the system to take undesirable actions and when the national total system detected the presidential system's failure to perform as expected, it induced external constraints which caused the presidential system to decompose itself.

Planners then, like presidents, themselves parts of the system's DSE functions, must likewise use DSE to deal with complexity and affect changes that will maintain the system's equilibrium. In fact, the importance of DSE cannot be overstated since it is the living system's only interface with its related systems and environment. Our human penchant for simple, handy answers to complex problems can distort the DSE process, and parallels our need to act as if our environment is unchanging, so great is the threat of change to our security and identity needs. In actuality, our environment in terms of living systems is constantly changing. Many things indeed change so slowly we pretend that they do not--such things are called parameters. Variables change rapidly, and we expect that. But to mistake parameters for constants can get systems into trouble. People change, organizations change, our relationships with others change. A detector that fails to admit of such subtle changes can seriously limit the living system in its quest for effective action in its own behalf.

A system's DSE process can also be distorted by its agendas, or motivating forces. A system's desire to meet a security need, for example, food, can cause it to be destroyed by another system if the former encroaches on the latter's territory. Undistorted DSE would have helped the hungry system predict the spillover effect of its aggressive action. Agendas can be hidden or open. When a human system's agenda is hidden, it is extremely difficult for a related system to have a productive interface, for the latter system must act to satisfy its partner's unknown needs. Of course, a system, if it has a dominance need, can also output a false agenda to confuse the unwary.

Sometimes extreme security, identity, or stimulation needs cause one living system to attempt to dominate another. While primitive animals dominate functionally or territorially, living systems tend to dominate symbolically, as well, requiring other systems to adopt their own referents (meanings of words), attributes, or values. A case in point is that of various Southern slaveholders in eighteenth century America who forced African slaves to take Christian given names and their masters' surnames. Conflict can arise and a system will often attempt to dominate another because of a difference of referents during the communication process. Ironically, if referents relayed between two systems are similar, the easier the communication and the less actual need to communicate, while disparate referents make communication more difficult in a situation where there is even more need to communicate.

A final concept needed to round out this brief introduction to General Systems Theory is that of the conversion process. This process is similar to the DSE process, because what DSE does with information, conversion does with various other elements. Once again, elements entering a system are inputs,

those leaving are outputs. Organized systems are capable of causing internal elements to change state, which was earlier defined as an element's attributes at a certain point in time. In conversion, inputs are changed into outputs with value and utility added as a result. For example, students enter a Shakespeare or Russian course, and if the course as system has been properly designed and functions to add value and utility to the student-input during the conversion process, then the student-output will enjoy a positive change in state. During conversion within the system the student uses his or her own DSE to cooperate in the process. If the student receives only communication--data and shared experience--rather than information--communication plus the reduction of uncertainty--positive conversion will probably not occur since the student's security needs will not be met.

Conversion can also be thwarted if systems designers do not share common assumptions regarding the educational system, for example, and its purpose.[13] Social scientists might view education as a socializing institution which integrates individuals into society. Students may perceive education as the pursuit of excellence validated by test results and grade averages. Faculty may consider education primarily an arena for academic achievement for themselves in which their work will earn them promotion and tenure.

Another model may consider education as a market mechanism producing workers, technologists, and professionals. A final model may consider education a selection process, restricted to those who have either the intellectual or financial resources to merit it. None of these models is adequate, but their disparities do illustrate the

importance of considering various conflicting assumptions when system planners design a system or make decisions of various kinds.

The preceding basic concepts of General Systems Theory are by no means the whole of the approach, and some members of the discipline--for it is an emerging one--might disagree with or perhaps qualify the various principles expressed. In general, however, ideas have been included on which most systems theorists agree, and which should prove the most useful in viewing Solzhenitsyn's One Day in the Life of Ivan Denisovich in terms of systems theory.

III

Solzhenitsyn's short novel relating the events of one day of the sentence of Ivan Denisovich Shukhov, a prisoner in a Siberian prison camp, is readily accessible in English in the Hayward-Hingley translation, which Alexis Klimoff ranks first among the various renderings.[14] Although a number of the resulting referents are inexact when Russian is turned into English and specific features like the author's style are not therefore analyzable, if the translation is good enough, as in this case, general systemic features of the work such as organization (plot) and living systems (character) emerge from the translation process sufficiently intact conceptually to be discussed in terms of systems theory.

One Day has already received a good deal of critical attention since it was published in the Russian journal, Novy Mir, in 1962, and translated by Hayward-Hingley in 1963. Too many people, both East and West, however, have primarily viewed the novel as utilitarian, documentary, or political rather

than as a significant example of belles lettres. For example, the back cover of the Hayward-Hingley text labels the book a "terrifying story of an almost unbelievable man-made hell," and "a scathing indictment of Communist tyranny." Even allowing for advertising enthusiasm, these statements about One Day are simply wrong-headed or untrue. The novel's tone is almost always matter-of-fact and the setting so universal that the camp itself typifies conditions possible under any of a number of other similar regimes.

According to Patricia Blake, One Day "compelled the human imagination to participate in the imprisonment and murder of millions that has been the distinguishing feature of our age."[15] Though closer to the mark, this is still hyperbole. George Gibian views the work more evenly, believing it to center on self-denial and self-restraint, "with no extreme violence or suffering."[16] As we shall see, however, Shukhov, the central character, denies himself very little during the course of his day and restrains himself very little more than a bank clerk might do who works for a rude, authoritarian supervisor. As attributes, self-denial and self-restraint are too passive to reliably characterize Ivan Denisovich. G. Lukács comes even closer to a correct appraisal of the environment with which Ivan deals when he says that, in the camp, "every detail meant an alternative between preservation and downfall" for Ivan and his fellow prisoners, though Lukács might well have qualified the "every."[17]

Kathryn Feuer keenly approaches the novel's essence by pointing out that "thoughout his day Ivan Denisovich faces one harrowing decision after another,"[18] and that his personal code "embodied a system of principles."[19] Probably one of the most perceptive early appraisals of the novel was by

Alexander Tvardovsky, who as editor-in-chief of Novy Mir when the November 1962 issue featuring One Day appeared, prefaced the work with some valuable insights: 1) the novel is "authentic" and "it is in the way in which the raw material is handled that gives it its outstanding value as a testimony and makes it an artistic document"; 2) "the theme of One Day is inevitably limited ...by the boundaries of the world to which the hero was confined"; 3) "the writer's style is vivid and original in its unpretentiousness and down-to-earth simplicity"; and 4) One Day is "a picture of exceptional vividness and truthfulness about the nature of man."[20] Although evaluating a work of fiction with the usual critical apparatus, both Feuer and Tvardovsky come very close to systems theory in their uses of such concepts as "decisions," "a system of principles," "boundaries," hero, "confined," the organization of "raw material," and "the nature of man."

In discussing One Day in terms of systems theory, there are a number of options. An analysis of the systemic relationship between reader and art object would be nearer to general systems theory itself than actual application, and a book merging the best in criticism and esthetics with general systems theory has yet to be written. The novel's organization, however, must be related to the fact that One Day, like any book, has fundamentally a linear structure--referent symbols detected by the reader must be input as clusters of words read from left to right and top to bottom on each succeeding page. The novel has no chapters and the events occur in chronological order, seen largely through the central character, Ivan himself. There are occasional "flashbacks," such as when Ivan remembers the content of past letters from his

wife (pp. 45-47), but these parts of the novel reside more in Ivan's memory in time present than by authorial intrusion. We often see Ivan externally, but Solzhenitsyn smoothly moves us from the outside to the inside of his protagonist in logical sequence. For example, Ivan is sitting in the hospital. "He felt his beard. It had gotten pretty rough since that last visit to the bathhouse about ten days ago. But what the hell! There'd be another bath in about three days, and he'd have a shave then. Why waste time waiting in line at the barber's? He didn't have to look his best for anyone" (pp.22-23). This brief quotation illustrates a typical cycle that is repeated many times in the book, a cycle as important in terms of structure as it is in terms of point of view or style. Ivan, the human system, detects an input, in this case his beard, selects an attribute, in this case the beard's roughness, which perturbs his need for identity, and then effects a decision involving a tradeoff--he will get a haircut, but not too often, because the alternative is a loss of valuable time which he requires to meet his security needs. His decision is a conscious one, for he readily realizes that his beard length is irrelevant to any other observing system: "He didn't have to look his best for anyone."

According to Michael Aucouturier, Solzhenitsyn's novels "have almost no plot; the events are not hierarchically arranged, but only juxtaposed in their chronological succession. This is clearly evident in <u>One Day in the Life of Ivan Denisovich</u>."[21] In the hierarchy of the systems of a novel, its plot is an authorial control of the environment in which the living systems--the characters--must perform their vital processes; therefore the plot is a relatively more abstract system than the characters themselves. But even plot can

be identified and defined at different levels, depending on how we look at it. In the usual sense, plot refers to a causally related set of events. Aucouturier has correctly defined a framework of the novel--its chronological order--but he has disregarded other important plotting systems which are indeed related as cause to effect, and throughout One Day.

First, the framework within which the plot resides is indeed chronological--the approximately seventeen hours of his day which Ivan spends as follows:

5:00 A.M. Reveille; Ivan gets up a bit later than usual; he mops the floor in the warders' office, visits the hospital, eats his breakfast, and returns to his barracks.

6:30 A.M. Roll Call; the gangs are searched before leaving for work; Captain Buynovsky is sentenced to ten days in the "cooler," or solitary confinement.

8:00 A.M. Gang 104 arrives at the building site after trudging two miles through snow and cold; Ivan and the others spend about four hours getting working conditions ready at the site.

12:00 Noon Lunch, and Tyurin's tale of his brother.

1:00 to 6:00 P.M. Ivan lays bricks on the second floor of the power plant.

6:00 to 7:00 P.M. Work ceases, and the prisoners are counted twice.

7:00 to 8:30 P.M. The trudge back to camp; the race between the two work groups; supper; Ivan buys tobacco from the Latvian.

9:00 P.M. Night check.

10:00 P.M. Ivan counts his blessings before falling asleep.

Slightly more complex is Solzhenitsyn's ordering of events within this chronological framework. The almost linear center of the novel is pages 109-26, which depict Ivan laying bricks. Almost exactly equidistant from this quantitylike center are Ivan's awakening and first thoughts (pp. 1-5), and his final thoughts and dozing off (pp. 202-203); Ivan's questioning of his physical condition (p. 6), and the Baptist Alyoshka's questioning of his spiritual condition (pp. 196-198); Ivan's possibly missed opportunity to buy precious tobacco from the Latvian in the morning (pp. 19-20), and his successful purchase of the stimulant in the evening (pp. 175-76); the malingerer Pantaleyev's absence from work in the morning (p. 31), and his reappearance in the evening (p. 167); Captain Buynovsky's offense and sentencing (p. 38), and the carrying out of that sentence (pp. 185-86); and a number of other parallel incidents which begin and conclude various minor plotting subsystems or related incidents within the novel. All of these parallels are unified at an even higher organizational level in terms of a detection-need-decision process that is yet another way of viewing the structure of One Day.

One Day is divided into three main phases--before, during, and after work--which operate within the chronological framework and which contain many episodes that are causally related and equidistant not only from the beginning and end of the novel, but from the novel's decisional climax, Ivan's stimulating work on the wall. This activity lasts five hours in chronological time, but only a short while in psychological time. Ivan himself recognizes this when he thinks, anticipating the work at about 1:00 P.M., "It was a funny

thing how time flew when you were working," (p. 73) and when, his stimulation about to end when the order to cease work comes at 6:00 P.M., he angrily says to his gang boss, Tyurin, "Why do the sonsofbitches give us such a short working day? You've just about gotten into the job and they pull you off it" (p. 124).

Although it is appropriate for Solzhenitsyn in a novel set in a forced labor camp to avoid symbols--things that stand for something else--when things so starkly stand for themselves, it is precisely while Ivan is working that the author uses just such an isomorphy, and one that emphasizes a major function of the novel. After arriving at the work site Ivan must spend five hours waiting to work. When he finally begins to lay bricks he uses a superior trowel he is not supposed to have (p. 61). In organizing his work materials, Ivan "never made a mistake. His bricks were always in line" (p. 109). The stimulation of work even transcends the elements: "Shukhov and the other bricklayers didn't feel the cold anymore" (p. 111). Ivan lays three rows of bricks following a string, or external control. Solzhenitsyn further emphasizes control at this point by having Der, the building foreman, arrive on the scene. Once Der leaves, Ivan, in his hurry to complete his fourth and fifth rows, continues to lay bricks without the string--he functions in complete control of himself, relying on no external measure to control his creativity. During the entire bricklaying episode, Solzhenitsyn focuses more and more upon Ivan, who at the beginning is only one of four bricklayers. But Ivan is obviously the best worker of the four, and he is the last to leave. In fact, he will not quit until he has finished the fifth row, and he is almost

late enough to be punished. Solzhenitsyn emphasizes the very real danger to Ivan by introducing a foil, a Moldavian, who actually is late after work because he fell asleep (pp. 136-37). When he finally appears, the Moldavian is hit and kicked by two fellow prisoners and sentenced to the cooler, after arrival back at camp. These penalties could have fallen on Ivan, had he not known just how far to extend his boundaries, just how long, to the split-second, he could continue to work.

The bricklaying scene and the brick wall are indeed climactic. Ivan's five tiers of bricks symbolize his triumph over his situation, his ability to order things in a way that satisfies himself--he has the maximum amount of freedom available for someone in his situation. Ivan has earned this freedom by his almost uncanny ability to make correct decisions.

The decisions which Ivan makes can be classified into three types, depending on whether they are designed to satisfy a security, identity, or stimulation need. Security needs relate to a living system's physical well-being; threats to security involve such things as hunger, lack of shelter, fear of sickness, or concern over another system's encroachment on a system's possessions or territory. Identity needs reflect the living system's requirement to maintain and project system integrity; the concern here is with the system's abstract possessions--such as freedom to make decisions and control its environment--and recognition of this status by other related systems. Stimulation needs especially characterize the human living system, which must be active to maintain equilibrium; by its very nature the human living system must process information, make decisions, become involved in the conversion process, and

through feedback gauge the results of its actions to be valuable and useful.

Generally a system's security and identity needs are already met before it engages in stimulating behavior, but to be successfully adaptive the detecting system must process environmental data and prioritize its decisions and actions to match its environment. If a system devotes all of its resources to meeting only one of its three needs, say identity, when in interface with another system that threatens its security, the former system will normally be dominated or dissolved by the latter.

Ivan's first decision in the novel is stimulated by a security need, his morning feeling of illness. "Shukhov always got up at reveille but today he didn't. He'd been feeling lousy since the night before--with aches and pains and the shivers....In his sleep he'd felt very sick..." (p. 3). Ivan meets this need by deciding to remain in bed a bit longer than usual to eke out a last few precious moments of rest, a decision similar to his already mentioned choice of continuing to meet his need for stimulation by working on the brick wall until the last possible moment so that his goal of completing the fifth tier of bricks could be reached (pp. 124-25). Since the prison system punishes both late risers and tardy workers, Ivan in each case takes a calculated risk which proves successful.

Ivan's idiosyncracy in refusing to eat floating fish eyes despite the laughter of his fellow prisoners reflects a decision that strongly reinforces his identity. Despite his great need for food (security), there are certain things he must be free to decline (identity). But Ivan is skillful in setting his priorities. Once Ivan had to choose between some beautiful leather boots he really enjoyed owning and polishing, and the more practical felt boots--the

guards would not let him have both (pp. 12-13). In this case Ivan subordinated his identity need to his security need and chose the felt boots. In Ivan's case this is neither self-denial nor self-restraint--he wisely chooses one thing over another and makes careful tradeoffs.

Ivan makes many stimulation-oriented decisions throughout the novel--surprisingly many for a Siberian prisoner. One such is when he waits patiently for Caesar Markovich to smoke most of his cigarette rather than whiningly asking for it like the scrounger Fetyukov. Ivan can of course live without cigarettes, but they represent that stimulating little something extra in life. In this choice of approach Ivan is again successful and the stimulation won is as much in the contest with Fetyukov itself as in the object attained, as Ivan himself realizes when he thinks: "The great thing was that he's beaten that scavenger Fetyukov to it, and here he was now smoking away....The smoke seemed to go all through his hungry body and into his feet and head" (p. 34).

After a reading of the entire short novel, one has first the feeling that Ivan does indeed make many decisions during the course of his day. In fact, he makes approximately 85 of them, and the kinds of decisions made and when they occur form another and yet more complex organization of One Day.

In the first phase of the novel, the eight hours before the climactic bricklaying episode, Ivan makes 38 decisions within the limits of about 52% of the novel's pages (pp. 1-108). Ivan makes 22 decisions for security needs, 6 for identity needs, and 10 for stimulation needs, with most of the latter made at the work site just before the actual bricklaying begins.

As stated earlier, to emphasize how Ivan's increasingly stimulated behavior makes psychological time accelerate during the climactic second phase of

One Day, the bricklaying sequence (pp. 109-26), Solzhenitsyn uses but 27 pages, or 8% of his total linear length, to represent five hours of work. Nevertheless within these few pages Ivan makes 33 decisions--only five fewer than he made in the first 108 pages. Whereas in phase one most of Ivan's decisions were security-oriented (22 out of 38, or about 58%), in phase two most of his decisions are stimulation-oriented (26 out of 33, or about 79%), with only 5 designed for security and 2 for identity. Security is not much of a problem now, because his 22 security-oriented decisions in the morning earned him the right to stimulation which he achieves in phase two. He does not need to make many identity-oriented decisions, since his identity is ensured by peer approval for the value of his work. The entire gang counts on him and three other bricklayers; their rations for the next day depend directly on how much work he does--Ivan's successful meeting of their collective need earns him identity enough.

Like phase one, phase three (pp. 126-203) is much longer than phase two. It covers the four hours after work and requires 40% of the novel's length, yet now Ivan makes only 14 total decisions--5 to meet security needs, for he is back in the more controlled environment of the camp, 9 for stimulation, and none for identity.

This third level of organization of One Day, then, is a multiplicity of related decisions made in reaction to Ivan's hostile environment, the diverse nature of these decisions both explaining and justifying causally the work's unravelling in phase one, its climax in phase two, and its resolution in phase three. Ivan's 85 total decisions during these seventeen hours highlight his ability to control himself and his environment through exceptionally effective

use of the DSE process.

The following table should serve to clarify the number, nature, time-frame, and significance of the decisional plot of One Day.

PHASE	DECISIONS			TOTAL
	Security	Identity	Stimulation	
One, Before Work	22	6	10	38
Two, At Work	5	2	26	33
Three, After Work	5	--	9	14
Day's Total	32 (38%)	8 (10%)	45 (52%)	85

Since Ivan has met stimulation needs through the majority of his decisions (52%) and paved the way for these stimulation-related decisions through 32 effective security-oriented decisions, his strong sense of identity is enhanced through self-confidence, and he must make only 8 directly identity-oriented decisions. Moreover, his sustained superior performance and high stimulation level during work result in a positive spillover of increased identity through peer recognition. It is thus understandable why Ivan is exhilarated and thinks before he falls to sleep, "Nothing had spoiled the day and it had been almost happy" (p. 203).

R. Blauner in Alienation and Freedom has done a study that affirms the esthetic realism of Ivan's accomplishment in One Day, if indirectly.[22] Blauner divides technology into four stages: 1) Craft Technology, "where there is little standardization of production," and little or no work is done by machines; Ivan's bricklaying is at this stage; 2) Machine-tending Technology,

with slightly more standardized production, such as the textile industry, where mostly female employees "mind" several machines; 3) Assembly-line Technology, such as the automobile or electronic industries, with mass production and mechanized assembly lines; and 4) Continuous Process Technology, such as in refineries and power plants, where production takes place automatically and the product flows from a continuous process that is largely remotely controlled.

Workers in these settings can experience four types of alienation, says Blauner: 1) powerlessness, when the worker feels controlled by others and is not free to decide what implements to use or how to approach his task; 2) meaninglessness, when a worker does not feel that his work is an important contribution distinguishable from that of other workers; 3) isolation, or a feeling of physical or psychological separation from his coworkers; and 4) self-estrangement, "When the activity becomes a means to an end, rather than an end in itself...When work is self-estranging, the occupation does not contribute in an affirmative manner to personal identity and self-hood but instead is damaging to self-esteem."[23] According to Blauner's study of the four stages of technology, workers in craft technology like Ivan Denisovich retain the most power, find the most meaning in their occupations, feel a strong sense of belonging in their work groups, and feel neither isolated nor self-estranged. Typically this human being sets his own work goals and standards, decides how the process will be done, measures the product against his own standards, and refines the output through DSE and feedback. These research findings apply to and correspond almost exactly with Solzhenitsyn's esthetic conception of the meaning of Ivan's freedom in One Day. What the artist arrives at

experientially or intuitively the systems researcher verifies in a manner that may suggest an expanded meaning to the unity of truth and beauty cryptically suggested by Keats in "Ode on a Grecian Urn."

IV

Solzhenitsyn provides yet another organizing feature in One Day, a hierarchy of systems which provide the total environment in which Ivan must function. Although featured but slightly, the physical universe serves both as a constraint and benefit for Ivan. Early in phase one of the novel, the very stars are blotted from the prisoners' view by the camp lights (p.8). When Ivan is at the work site, however, a far less restrictive environment than the camp itself, he looks up at the sun and from its position estimates the time to be almost noon (p. 73). Captain Buynovsky retorts that an overhead sun means one o'clock, not twelve, because the Soviet government has passed a law to that effect (p. 74). Even when considering nature, the Captain is characteristically bitter about his imprisonment. Ivan does not take Buynovsky seriously, and in fact later uses the sun to discern the approaching end of his work day (p. 119).

As his gang is later about to leave the work site, Ivan looks up at the sky at about 7:00 P.M. "The moon had come up full and it looked all purple, and maybe it was on the wane already. It had been much higher up this time the day before" (p. 127). Ivan then asks the Captain what happens to the old moon when it goes down. Buynovsky is struck by Ivan's ignorance of astronomy when the latter asks, "If people are born every day, why shouldn't there be a brand-new moon every four weeks?" (p. 128). When the Captain holds doggedly

to the scientific view of the moon's revolution around the earth, Ivan suggests quite simply, "the old people at home used to say God breaks the old moon up into stars" (p. 128). When Buynovsky asks why God would do that, Ivan replies, "The stars keep falling down, so you've got to have new ones in their place" (p. 129). Unlike Buynovsky, Ivan has fully accepted the fact of his imprisonment and views the universe and its God in a simple, child-like way--indeed, his open attitude toward the universe is a systemic link between him and the basic faith of his peasant kind.

And if the universe is sometimes curious, sometimes useful, and sometimes neutral to Ivan, so is nature itself. The chief elements of nature pervading the novel are severe cold, snow, and icy blasts of wind. The hammer pounding on the rail to sound reveille early in the novel cannot produce much noise, since the sub-zero molecules in the rail are severaly compressed and provide little vibration, as Captain Buynovsky might explain (p. 1). The inch of ice on the barracks window further filters the sound. The bitter cold makes conditions at the camp and at the work site miserable for the prisoners, yet also at times it becomes Ivan's ally. After scrubbing the warders' floor, for example, in a small but significant act of defiance, Ivan "splashed his water out of his pail onto the path used by the top brass" (p. 14). Ivan well knows that the water will freeze and might provide an icy accident for one of his tormentors. Ivan's ability to cope with the severe January blasts, combined with his capacity for hard, productive work also make him an extremely valuable member of Gang 104, as is shown when his gang boss, Tyurin, says to him: "What the hell are we going to do without you when you've served your time? We'll

all be crying our hearts out for you" (p. 123). Moreover, Ivan's fellow gang member Caesar Markovich, a former motion picture cameraman, dislikes the cold, and Ivan helps Caesar by holding a place for him in the cold package line, a service which Caesar later repays by giving Ivan items from one of his packages.

The prisoners' relationships with the national system, the U.S.S.R., vary from man to man. Pyotr Mikhailovich gets "the Evening News fresh from Moscow" and shares it with Caesar (p. 157). Some prisoners discuss the Korean War (p.175), and another refers to Stalin thusly, "You think that old bastard in Moscow with the mustache is going to have mercy on you? He wouldn't give a damn about his own brother, never mind slobs like you" (pp. 176-77). Characteristically, Ivan neither relishes nor deplores life outside the camp, but has systematically closed himself to it, for outside is outside, and he is inside. He remembers well but dispassionately how he was unjustly sentenced to prison in 1942 after being accused as a collaborator after he and other fellow soldiers escaped from the Germans (pp. 76-77). In his present camp he is permitted to write two letters a year, but even though he could have written monthly at his previous camp, he chose to write home only twice yearly (p.44). What little communication Ivan has received from outside has been no particular benefit to his survival. For one thing, his letters home provide no feedback relative to his own situation, or as Ivan puts it, "Writing now was like throwing stones into a bottomless pit. They fell down and disappeared and no sound came back. What was the point of telling them what gang you worked in and what your boss was like? Now you had more in common with that Latvian Kilgas than with your own family" (p. 44). And if letters to his family seem almost meaningless, letters from them provide little comforting information. Life

with his family is always about the same. Instead of carpentry, which was Ivan's trade, the workers on Ivan's collective farm are now busy tracing carpets on old sheets, an occupation Ivan belittles (p. 46-48).

Ivan has even told his wife not to send him any packages, since so much of what she might send him would go to guards and others before coming to him (p. 154). Ivan has a natural interest in life outside and does love his family --in fact, he thinks his children need the package items more than he does. But to survive his sentence he must eject from his consciousness anything that might debilitate his decision making powers, whether it be anger at his unjust sentence--and he has been a prisoner for nine years--a desire for life outside the prison, or even a longing for his wife and children. Ivan will never be weakened by disappointment over not receiving a package. The major reality for him is his immediate environment, and how he might best adapt to it.

The function of the penal system which has Ivan and the others in its grip is to incarcerate political prisoners and use them to build settlements for colonists in Siberia. The system itself consists of administrative officials, commandants, officers, guards, warders, and trustees at the supervisory level, and at the lowest level, the prisoners themselves--Ukrainians, Estonians, Latvians, Tartars, Muscovites, Moldavians, and so on.

As Ivan is in interface with his superiors he detects in general very open agendas on their part. Regulations are simple and not too numerous. Basically, the prisoners must do as they are told, when they are told. They must wear identifying numbers on their hats and garments; Ivan, for example, becomes S-854. The prisoners must work every day, even on most Sundays, and to ensure that

they work productively, the system adopts an attribute of the free enterprise system. Prisoners are placed in work gangs of about 25 men--Ivan is in Gang 104--led by a gang boss and his assistant. A prisoner's survival depends first on himself, and then on his boss, assistant boss, and fellow gang members. For example, Ivan says of his assistant gang boss, Pavlo, "more depends on him than on the Commandant" (p. 26).

The gang boss is responsible for the discipline and whereabouts of his men. He negotiates job assignments and work rates with the prison administration, and allocates portions of food to his gang members depending on their daily productivity. This system works relatively well for Ivan, whose boss, Tyurin, usually gets his men the more preferable jobs at relatively good rates, and is thus an effective planner and leader.

Ivan's Gang 104 is full of interesting types, and each fills a role. There are twenty-four men in the gang, and in the course of the novel we meet Tyurin, Pavlo, Kilgas, Captain Buynovsky, Caesar Markovich, Alyoshka, Senka, Gopchik, Yermolaev, Pantaleyev, and Fetyukov. One's first loyalty is to himself, then to his gang, then to his work group, as is demonstrated when Ivan's large group from the construction compound races to get back to camp after work before the group from the Socialist Community Development (p. 143).

Ivan, an expert at risk taking, either accepts or manages to secretly violate or subvert the simple camp regulations whenever his survival requires it, and whenever the remotest opportunity presents itself. For example, while at work he finds a piece of metal which might prove useful, pockets it, and then forgets about it until he is about to be searched back at camp after work.

Ivan realizes that if the guards discover the metal and consider it a knife, he could get ten days of solitary confinement, but "a knife like that could bring something in. It could mean more bread. He couldn't stand throwing it away so he slipped it in one of his mittens" (p. 148). At this point Ivan decides to take a risk, but it is a calculated one based on his knowledge of search procedures and psychology.

Ivan notes that he will be one of the last four prisoners searched, and there are five warders searching. He can choose either of two warders facing him on the right. Ivan takes three actions to minimize his risk and increase his odds for a successful outcome. First, he chooses the old warder "with gray whiskers instead of the young one with the red cheeks. Of course the old man knew his stuff and would have no trouble finding it if he wanted, but the thing was he was old, so he must be fed up with his job" (pp. 148-49). Ivan thus depends on the old man not to be too thorough. Second, Ivan takes off both mittens and holds them up in one hand with the empty mitten a little in front so it will be searched first. Perhaps the old man will then search only the empty mitten, not the one with the piece of steel hidden inside. Third, he opens his coat wide, creating the impression that he has nothing at all to hide.

The old warder searches Ivan, looks into the empty mitten, and is about to inspect the other. Ivan does not panic, but prays to God for help. At this point the chief warder, anxious to get his men and himself out of the cold, calls for the next work group, "So the old man with the gray whiskers didn't bother with Shukhov's other mitten and waved him through" (p. 150). Ivan's success in this case is indeed partly due to chance, but he has

carefully structured his actions both to minimize dependence on chance and yet to take maximum advantage of it. Very likely if Ivan had chosen the younger man rather than the old one, at that crucial moment when the chief warder had called for the next group, the younger man might have said, "Just a moment, I'm not quite done with S-854," or he might simply have searched the second mitten quickly anyway. This kind of careful and informed decision making is typical of Ivan throughout the novel. His success in what he decides to do and how he does it, in fact, weaves a pattern of related decisions which bring Ivan strong synergistic benefits. That is to say, the sum total of his individual decisions equals not only a certain amount of survival and success for one day, but leaves him with additional resources--extra bread, a piece of precious metal, a hidden trowel, some tobacco, and most importantly an increased level of self-confidence--with which to face the next day, and the one after that.

Ivan is, then, a Planner Leader who very capably deals with the level of complexity which prison life presents. He is an expert observer (detector) who knows exactly which external events and elements are significant in terms of his security, identity, and stimulation needs (selector), and he takes appropriate actions (effector) to reach his goals, expertly using feedback to deal with related systems. His entropy level is usually balanced, and when it is not, he takes corrective action--even prayer--to stabilize it. He also makes correct tradeoffs which meet his priorities, for example, in choosing felt boots over fancy ones, or security over identity and stimulation (pp.12-13). He knows which elements of his environment are changing positively or negatively relative to his own best interests, and changes his approaches not only to

meet but to master his environment. He wisely accepts those prison constraints which he cannot control, but is also imaginative in turning controllable constraints into personal opportunities.

Ivan is thus active in both Systems Improvement and in Systems Design. When he realizes he cannot change a certain system element, he manipulates it, as he does when he acts the dumb prisoner and sloshes water on the warders' feet while mopping their floor so they'll tell him to finish his job quickly and get out (p. 14). As Ivan puts it, "If you're working for human beings, then do a real job of it, but if you work for dopes, then you just go through the motions" (p. 14). In effect, Ivan redefines and refashions various elements of the camp rules and structures to suit his needs (Systems Improvement), but more importantly he is also constantly engaged in modifying his own overall behavior as a living system (Systems Design) to permit him to achieve his goals by increasing his own level of control over external events.

Ivan also has redefined his relationship to his oppressors, the guards, in a manner consistent with his goals. Service in a Siberian prison camp is hard duty. Ivan realizes that the system itself is impersonal, doling out harsh sentences to Heroes of the Soviet Union (p. 10), naval captains (p. 51), artists (p. 14), university students and budding poets (p. 20-25), motion picture cameramen (p. 33), business executives (p. 68), and religious dissidents (p. 8); but the human agents of the system, the officers and guards, in many ways share his plight. Solzhenitsyn highlights this common misery by drawing very fuzzy lines--it is almost impossible at times to tell who is a prisoner and who is not. At one point Ivan thinks of the guards, "it was no picnic for them either to kick their heels on top of watchtowers in this freezing

cold" (p.25). Indeed, the guards often work covertly with the prisoners for their mutual survival. For example, prison rules forbid the prisoners to smuggle wood back into camp after work, and the guards must search them to see that they do not. In actuality, the guards need wood too, so they do not search too hard and are content to have the prisoners drop a portion of their wood for the guards' own use, and keep the rest for themselves. As Ivan puts it, the guards "had to leave some for the warders and even some for the prisoners or there'd be none at all for anybody" (p. 132). As in all cases when one system dominates another, its very dominance limits its own course of action. Many slaves have thus been able to manipulate their masters. By recognizing the humanity and individuality of the guards, Ivan is able to make his decisions even more effective. Recognition of the guards' suffering also gives Ivan something in common with them, which fact both bolsters his identity and maintains his relationship with other living systems besides his fellow prisoners. Here and elsewhere, Ivan's capacity to recognize isomorphies increases his ability to meet his own needs while remaining aware of the needs of others.

V

As demonstrated earlier, most of Ivan Denisovich's agendas relate to security and stimulation, because he is a humble man with little need to assert his identity or dominate others. A significant foil to Ivan is Caesar Markovich, whose need is primarily for stimulation. A would-be intellectual, Caesar discusses art and cinema and enjoys reading the Moscow paper. He and Ivan have a positive relationship, for Ivan's strengths complement Caesar's weaknesses, as is seen when the wilier Ivan helps Caesar hide his food (p. 188-89). But Ivan

does not merely use Caesar. "It was not that he wanted to get something out of Caesar again but he was just sorry for him" (p. 188). Caesar, and in turn intellectualism itself, says Solzhenitsyn, can survive and flourish only so long as it cooperates with common sense, typified by Ivan. And conversely, common sense and practicality are not enough for man's total survival, either, for Ivan needs Caesar as much as Caesar needs him.

If Caesar represents those individual living systems primarily oriented toward stimulation, the scavenger Fetyukov stands for those for whom security needs are paramount. Fetyukov will do anything to survive--he will lick other prisoners' bowls after they finish eating; he collects old cigarette butts; he looks on with hungry eyes while Caesar is smoking; he haunts extra bowls of food earned by others, hoping he will be given one. Ironically, obsession with one's security needs can eventually blind the living system to the totality of its survival needs, and eventually cause system failure. Ivan has Fetyukov in mind as he recalls the words of his first gang boss, Kuzyomin, "It's the law of the jungle here, fellows. But even here you can live. The first to go is the guy who licks out bowls..." (p. 2). Unlike Ivan or even Caesar, Fetyukov, because of extreme worry over his survival, is unable to properly prioritize his goals and actions. He is a loner, and loners do not last long in the camp.

A third major foil for Ivan Denisovich is Captain Buynovsky, Ivan's bunkmate, who has only been in the camp for three months. While Ivan is adaptable, Buynovsky, both through temperament and through long years spent in the military environment, is inflexible. A high-ranking naval officer, a man "who'd worn gold shoulder straps in his time and been pals with a British admiral" (p.140), Buynovsky incorrectly defines his new environment and his relationship

to it, doggedly asserting his identity and dominance needs until he meets his tragic downfall. As the members of Gang 104 are searched in the morning before leaving for work, both Caesar and the Captain are caught wearing unauthorized civilian clothing. "The Captain kicked up a fuss, just like he used to do on his ship," saying "You've no right to strip people in the cold! You don't know Article Nine of the Criminal Code!" (p. 38). The stern Lt. Volkovoy sentences the Captain to ten days of solitary confinement for this outburst, while Caesar, guilty of the same original offense, merely has to fill out a report after work.

The Captain can ill afford ten days in solitary, for as Ivan notices, "The Captain was clearly going downhill. His cheeks were caved in, but he kept his spirits up" (p. 41). At this point in the novel the reader is unaware what ten days of solitary really mean. Later in the day the Captain (identity/dominance) barks at Fetyukov (security), who is sorting out old cigarette butts he has collected, "Hey, what are you collecting all that crap for? You'll get syphilis. Throw it out!" (p. 56). As Ivan notes, "The Captain was used to giving orders and he always talked to people like this" (p. 56). On a previous day Fetyukov had tried to bully the Captain, but "the Captain hit him in the teeth a couple of times" (p. 68). Although bickering with his fellow gang members and defying the guards, Byunovsky does try to do his work, despite his emaciated appearance (p. 71), yet he is not a very valuable member of the gang during the climactic second phase of the novel.

In fact, just before the sequence of Ivan's transfiguration through work, the Captain's obsession with identity and dominance becomes even more marked at lunch at the work site, as he attempts to order prisoners who have finished

eating to leave the mess hall. "They could all hear the Captain yelling in the doorway like he was still on the bridge of his ship: 'What's everyone hanging around for? You've had your meal, so get out!'" (p.87). And yet after the Captain finishes eating, he himself sits and relaxes at the table rather than leaves, as he earlier had expected others to do (p. 90). Pavlo, the assistant gang boss, recognizing the Captain's declining health, gives him an extra bowl of mush (pp. 90-91). Ivan sympathizes with the Captain, but lets him go his own way, realizing that Buynovsky must learn the ropes himself if he is to survive.

Solzhenitsyn masterfully unites the stimulation-oriented Caesar with the identity/dominance-oriented Buynovsky in a scene near the novel's end which contrasts the imaginativeness of the former with the literal-mindedness of the latter. As the two discuss Eisenstein's classic film, Potemkin, Caesar emphasizes the techniques of cinematography in the famous baby carriage scene, while the Captain is upset because such films give "a cockeyed idea of life in the navy" (p. 135). Buynovsky also objects to the sequence when "maggots crawling on the meat were as big as earthworms," maintaining that they could not really have been so large. This discussion, as well as Buynovsky's earlier debates with Ivan regarding the sun, moon, and stars, clearly indicate the Captain's inability to deal with complexity ordered beyond the literal level. And yet Caesar feels at home with the Captain and generously shares smoked fish and sausage from his package with him (p. 183). While Caesar allies himself with Ivan to further his own security, he allies himself with Buynovsky to further his stimulation.

The Buynovsky sub-plot begins early in the novel with his offense and sentencing (p. 38). Although Solzhenitsyn weaves more and more information about the Captain into One Day as the work progresses, the author does not remind the reader of the important morning incident so that the resolution of the sub-plot will be unexpected. After work the Captain eats a hearty meal with Caesar, reaffirming his identity by launching into a story about an experience he once had in Archangel. Suddenly one of the warders, Snubnose, enters the barracks looking for Tyurin (p. 184). Snubnose tells Tyurin that the higher-ups are waiting for reports from Caesar and the Captain regarding their prohibited wearing of civilian clothes earlier in the day. Ivan, overhearing the conversation, thinks that the Captain might not have to go to solitary after all. The Captain goes on eating sausage and telling his story to Caesar, oblivious to his environment, and does not overhear Tyurin and Snubnose. Snubnose then asks Tyurin where S-311, the Captain, is, but ever the protective gang boss, Tyurin stalls by looking at his prisoner list, pretending not to remember exactly who S-311 is. "He was playing for time, trying to drag things out till they called the men for the night check, and maybe then the Captain wouldn't have to go to the cooler that night" (p. 185).

Getting impatient with Tyurin, Snubnose finally shouts out, "Is Buynovsky here" (p. 186). Had the Captain been more perceptive or had he not been so eager to assert his identity, he might have been spared, for no sooner does he identify himself than the men are ordered outside for night check. It is only at this point that Solzhenitsyn reveals the shocking significance of the Captain's punishment: "Ten days! If you had ten days in the cells here and sat them out to the end, it meant you'd be a wreck for the rest of your life. You

got TB and you'd never be out of hospitals long as you lived" (p. 187). Having hoped that Lt. Volkovoy would either forget about the sentence or let him off, the Captain is completely unprepared to go to solitary, and departs sheepishly to meet a fate he might easily have avoided.

Had Captain Buynovsky, like Ivan, been sufficiently adaptable to redesign his own personality to meet the demands of his new, hostile environment, his tragedy would not have occurred. Buynovsky is thus the most fully developed foil for Ivan in One Day, for while the Captain is intelligent, learned, high-ranking, dominating, lacking in tact, and has all his agendas wide open, Ivan is commonsensical, simple, socially unpretentious, aggressively submissive, cautious, and keeps most of his agendas hidden not only from the guards, but from his fellow prisoners, as well. Ivan has redesigned himself not only to survive the harsh prison environment, but to thrive in it. His models have been Tyurin and others, but especially the old man who has never given in (pp. 171-72). If Ivan is not freed he will probably become a gang boss like Tyurin in ten years, or a prison patriarch like the dignified old man in thirty. If he should be freed, he will most probably adapt very well to life on the outside. In any case, having successfully defied the oppressive Siberian system he is indeed a hero of modern fiction.

Although he is discussing systems theory rather than One Day, van Gigch aptly characterizes Solzhenitsyn's Ivan when he writes, "It is the consciousness to move in the direction of progress toward self-imposed goals which makes the human being a superior system...."[24]

the application of General Systems Theory VI

In to literature, a work should be evaluated in its broadest terms before its various elements are examined. Our view of a work will vary depending on how we break the work down into subsystems. For example, if One Day were analyzed completely in terms of risk theory, control, planning, suboptimizing, information flow, or conversion processes, diverse yet valid interpretations would emerge as long as systems theory principles were correctly understood and carefully applied. This essay has limited its approach primarily to organizational theory, needs and decision making, relationships between living systems, and systems attributes, and at a level meant for a wide audience. Humanists should not be put off by the statistical analyses which systems theory provides or evokes, for many areas of GST can well be applied to literature without any use of statistics. But statistics, important in GST, can also be a useful tool for the literary critic who chooses to employ them. Statistics enable us to convert prominent quality-like attributes of a work, such as Ivan's overall decisions, into quantifiable concepts, such as the percentage of the types of decisions which Ivan makes. Finally, the numerical values can be reconverted into more valid evaluations of the qualitylike features of a novel or poem, as is the case when statistics enable us to identify when, where, and why certain kinds of decisions are made by a protagonist in an organizational pattern that supports not only these decisional elements, but the total fabric of the work of art itself. General systems theory, when applied to literature, forces the practitioner to try to understand the work as a whole first, before analyzing the parts to see how they support the whole.

Nor should humanists fear that a systems approach will strip a literary work of its magic. GST may rather enable us to widen our boundaries to new areas of awareness and thus improve our ability to deal with the complexities in which the work of art exists. The systems approach may well open an exciting new door to literary criticism, with its appropriateness to our particular discipline affirmed by R. P. Blackmur, when he writes: "Any rational approach is valid to literature and may be properly called critical which fastens at any point upon the work itself."[25]

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Notes

[1]"The History and Status of General Systems Theory," in Trends in General Systems Theory, ed. J. Klir (New York: Wiley, 1972), p. 21.

[2]D. C. Philips, "Systems Theory--A Discredited Philosophy," Abacus, Sept. 1969, pp. 3-15.

[3]For a full list of von Bertalanffy's works see General Systems, 17 (1972), 219-28.

[4]Applied General Systems Theory, 2nd ed, (New York: Harper & Row, 1978), pp. 56-57. Points one through five are paraphrased from this most useful work, and most of the later definitions come from it, as well.

[5]W. Ross Ashby, "General Systems Theory as a New Discipline," General Systems, 3 (1958), 1.

[6]Ervin Laszlo, The Systems View of the World (New York: Braziller, 1972), pp. 19-20; quoted in van Gigch, p. 57.

[7]Ludwig von Bertalanffy, "General Systems Theory," General Systems, 1 (1956), 2; quoted in van Gigch, p. 57.

[8]General Systems Theory--The Skeleton of Science," General Systems, 1 (1956), 11-17; rpt. from Management Science, 2 (1956), 197-208; quoted in van Gigch, p. 57.

[9]Mathematical Aspects of General Systems Analysis," General Systems, 11 (1966), 3; quoted in van Gigch, p. 57.

[10]van Gigch, p. 1.

[11]C. W. Churchman and Others, Thinking for Decisions: Deductive Quantitative Methods (Palo, Alto, Calif.: SRA, 1975), p. 417; quoted in van Gigch, p. 3.

[12]"Beowulf," in Critical Approaches to Six Major English Works, eds. R. M. Lumiansky and Herschel Baker (Philadelphia: Univ. of Penn. Press, 1971), pp. 3-40.

[13]From van Gigch, pp. 87-88.

[14]Alexander Solzhenitsyn, One Day in the Life of Ivan Denisovich, trans. Max Hayward and Ronald Hingley (New York: Praeger, 1964; Bantam Edition, 1963); all parenthetical references in this essay are to this translation; Alexis Klimoff, "Solzhenitsyn in English: An Evaluation," in Aleksandr Solzhenitsyn: Critical Essays and Documentary Materials, eds. John B. Dunlop and Others (Belmont, Mass.: Nordlund, 1973), pp. 533-37.

[15]"Solzhenitsyn and the Theme of War," in Solzhenitsyn: A Collection of Critical Essays, ed. Kathryn Feuer (Englewood Cliffs, N.J.: Prentice-Hall, 1976), p. 84.

[16]"How Solzhenitsyn Returns His Ticket," in Feuer, p. 115.

[17]Solzhenitsyn (Neuwied and Berlin: 1970), p. 17.

[18]"Introduction," in Feuer, p. 17.

[19]Feuer, p. 16.

[20]Translated in Hayward-Hingley, pp. xix-xx.

[21]"Solzhenitsyn's Art," L'Herne, 16, Série Slave, Soljénitsyne, eds. Georges Nivat and Michael Aucouturier (Paris: Les Editiones de L'Herne, 1971), pp. 345-51; trans. Kathryn Feuer and Sima Godfrey in Feuer, p. 27.

[22](Chicago: Univ. of Chicago Press, 1964); cited in van Gigch, pp. 509-512.

[23]Blauner, p. 32.

[24]van Gigch, p. 47.

[25]"A Critic's Job of Work," Language as Gesture (New York: Harcourt, 1952); rpt. in Wilbur Scott, Five Approaches of Literary Criticism (New York: Collier, 1962), p. 322.